

# PATENT SPECIFICATION

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## COMPLETE SPECIFICATION

### NO DRAWINGS

### A Novel Alkaloid

We, OLETTA S.A., of 2bis, Boulevard Royal, Luxembourg, Grand Duché of Luxembourg, a company organised under the laws of Luxembourg, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention is concerned with novel pharmaceutical products, namely an alkaloid isolated from plants of the genus *Phyllanthus* (Euphorbiaceae), and more particularly from the species *Phyllanthus discodeus*, and acid addition salts of this alkaloid.

Investigations have shown that an alkaloid suitable for use in human and veterinary therapy by virtue of its diuretic, cardiotonic and respiratory analeptical activity can be obtained in an advantageous yield and in economic manner from species of the genus *Phyllanthus*.

This alkaloid takes the form of yellow crystals having a melting point of 136°C. Its empirical formula is  $C_{12}H_{15}O_5N$ . Its ultra-violet spectrum shows:

Max: 255 m $\mu$

300 m $\mu$

Min: 295 m $\mu$

30 Logarithm  $\epsilon$  at 255 m $\mu$  = 4.19 for molecular weight 217. In mice, its toxicity is:

DL 50 = 95 mg./kg.

The salts of this alkaloid are white.

35 The alkaloid may be extracted from the plant or parts thereof by methods known to be capable of extracting alkaloids from vegetable matter. The term "known" as used in this context is understood as designating methods in actual use or described in the literature.

The features of such a process will be more clearly apparent from the Example

[Price 4s. 6d.]

given below by way of non-limitative illustration:—

The plants, or parts thereof, such as fruits, leaves, bark or roots (depending on the species and the season in which they are gathered) are crushed and rendered alkaline with a 20% ammonia solution, a 10% or 5% sodium carbonate solution, or milk of lime or magnesia, or are wetted with water.

In the case of *P. discodeus*, the extraction is effected from the roots.

After contact for several hours, the plant or part thereof is extracted in a Soxhlet type apparatus, a mixer, a percolator or a rotative extractor with for example ether, benzene, chloroform or ethyl acetate.

After complete extraction of the plant material with one or a mixture of these solvents, the extracts are in turn extracted with an aqueous solution of an organic or mineral acid or a mixture of such acids, at a concentration of from 2% to 20%.

The alkaloid passes into the acid solution. It is liberated by making this solution alkaline with ammonia or sodium carbonate solution. The alkaloid is then extracted with a solvent or a mixture of solvents immiscible with water, such as ether or chloroform. On distillation of the extract so obtained, a residue is obtained, which residue is dried and which consists of the alkaloid with other substances such as terpenic acids and resins.

These alkaloidal principles are dissolved and fixed on a chromatographic column of alumina, silica or an ion-exchange material. An eluent (benzene) then removes the alkaloid which, when taken up in methanol, crystallises in the form of beautiful yellow crystals. The recrystallisation may be repeated a number of times.

It is also possible to obtain the crude alkaloidal residue by extraction of the plant

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